

Hunter Expressway: GNSS sites 2 & 3



Environmental Construction Method Statement (CMS)

Environmental Construction Method Statement No: HExCMS08

Activity: Clearing and other works associated with the installation of the Global Navigation Satellite System (GNSS).

Scope of activities:

- Minor clearing/trimming for surveyors to achieve line-of-site.
- Works in or near items that are environmentally sensitive, eg Lower Hunter Spotted Gum Ironbark Forest and Kurri Sand Swamp Woodland EEC vegetation.
- Delineation of clearing boundary and environmentally sensitive areas.
- Two-phase clearing process, where applicable.
- Fauna rescue during clearing operations.
- Placement and/or mulching of felled vegetation.
- Erosion and sediment control installation and maintenance (refer to erosion and sediment control plan).
- Earthworks and importation of road base, where relevant.
- Installation of GNSS and perimeter fencing.

Relevant Environmental Documents:

[Hunter Expressway stage 1 early works construction environmental management plan \(RTA, 2010\).](#)

[Progressive erosion and sediment control plan.](#)

[DECCW conditions of concurrence \(2001\).](#)

[DECCW conditions of concurrence \(2010\).](#)

[DEWHA expressway approval \(2007\).](#)

[Ministers Conditions of Approval \(2001\).](#)

[RTA Environmental Assessment \(EIS, Submissions Report\).](#)

[Hunter Expressway global navigation satellite system consistency review](#)

Checklists/Monitoring:

Checklist HEx2: Daily/weekly environmental checklist (or RFS-Form-401).

* Further monitoring to be undertaken in accordance with Section 9.3 of RTA's stage 1 early works, where required.

Attachments:

Attachment 1 - sensitive area map 5 and map 9, – chainage 7,700 and 15,100, respectively.

Attachment 2 - progressive erosion and sediment control plan.

Key Contacts:

Project community information line 1800 001 267

Environmental risk items and controls:

<i>Risk</i>	Environmental control
<i>Access roads</i>	Drive on established local road and tracks and within marked and approved sites to avoid damage to threatened and protected flora, and potential Aboriginal and non-Aboriginal heritage which may be present.
<i>EEC vegetation</i>	All areas of EEC vegetation identified in the environmental assessment documents and the sensitive areas maps (relevant sensitive area map, which includes mapped ECC vegetation, provided as attachment 1) shall be clearly identified prior to any works being undertaken. Works need to be undertaken with care not to move outside the approved sites. The movement of construction traffic into and out of the site is to be via existing local road, access tracks and paths, unless otherwise approved. Do not vary access from these roads without the prior consultation with the RTA environmental management representative and/or RTA senior environmental officer.
<i>Working near Aboriginal heritage sites</i>	Consult sensitive area mapping (Appendix C of CEMP) to assess where known sites may occur in close proximity to work areas. Work is to be undertaken in accordance with the CEMP procedures. Known Aboriginal heritage sites are to be temporarily or permanently fenced, in consultation with Aboriginal community, prior to works commencing in those areas. Where a potential artefact is encountered, all works in the immediate area shall cease until the potential artefact can be assessed by the project archaeologist.
<i>Working near non-Aboriginal heritage sites</i>	Consult sensitive area mapping (Appendix C of CEMP) to assess where known sites may occur in close proximity to work areas. Work is to be undertaken in accordance with the CEMP procedures. Known non-Aboriginal heritage sites are to be protected with temporary or permanent fencing, in consultation with the project archaeologist, prior to works commencing in those areas. Where a potential relic is encountered, all works in the immediate area shall cease until the potential relic can be assessed by the project archaeologist.
<i>Erosion and sediment control near waterways</i>	Works are to be undertaken in accordance with the Progressive Erosion and Sediment Control Plan (provided as attachment 2). Maintenance of these controls is to be undertaken weekly or after storm events greater than 10mm.
<i>Threatened fauna</i>	The work areas may contains habitat for several threatened species known or expected from the area. All protocols contained within the CEMP shall be followed especially relocation of fauna by ecologist should any hollow limbs require trimming.
<i>Fauna rescue</i>	Ensure details of the fauna rescue specialist, veterinary care and local animal welfare groups are on site at all times. Fauna rescue personnel and equipment is to be available on site during clearing operations. Uninjured animals that are rescued are to be relocated to suitable predetermined locations within adjoining bushland by the project

WEEDS — PLANT AND EQUIPMENT TO BE FREE OF ANY MATERIAL CONTAINING OR WITH THE POTENTIAL TO CONTAIN WEEDS PRIOR TO ARRIVAL ON-SITE. SUB-CONTRACTOR "WEED FREE" DECLARATION TO BE COMPLETE.

	ecologist.
<i>Work hours</i>	Work hours are to be between 7am and 6pm Mon-Fri and 8am to 1pm Sat unless directed by Agencies or Police. No “warming up” of plant before starting time identified above.
<i>Environmental incident</i>	Keep an emergency spill kit at all work sites at all times and ensure all staff are made aware of its location. In the event of an environmental incident, implement the RTA’s Guidance for Environmental Incident Management Procedure (RTA Policy Guideline PN 025G). All personnel must be made aware of the procedure and a copy held at each work location.

Prepared by: Andrew Grainger (Bowditch Group)

WORK SEQUENCE

Process 1: Pre-construction activities			
Steps	Activity	Responsibility#	Sign-off when complete
1	Signoff of CMS by RTA and HRS prior to submission to EMR.	RTA senior environmental officer	
2	Approval of CMS by EMR prior to works commencing.	RTA senior environmental officer/ EMR	
3	Identify capture and release areas for fauna found in areas to be cleared.	Project ecologist	
4	If any tree hollow roosts for bats are identified during pre-clearing surveys that are unable to be relocated, install artificial bat roosts in adjacent vegetation prior to clearing.	Project ecologist	
5	Relocate key habitat features, including coarse woody debris (wood greater than 100 mm in diameter and longer than 0.5 m), ground cover features and bush rock to adjacent recipient sites.	Project ecologist	
6	Inspect the work areas, assess drainage and riparian conditions, note areas where disturbance cannot occur and prepare erosion and sediment control plans for the Work areas where necessary (see attachment 2).	Project soil conservationist	

Process 2: Survey set out of GNSS site			
Steps	Activity	Responsibility [#]	Sign-off when complete
1	Workers inducted into requirements of CMS. Requirements reinforced during daily toolbox.	HRS supervisor	
2	Access to be restricted to existing local roads and access tracks in accordance with access points detailed on progressive erosion and sediment control plans (see attachment 2). There is to be no access from other locations.	Survey team	
3	No clearing or trimming of vegetation is to occur until all environmental approvals have been received and the RTA project manager/senior environmental officer has approved commencement of works.	Survey team	
4	Limits of clearing works is to be established by survey pegging and installing continuous durable reflective spinning tape or similar to delineate the boundary of works.	Surveyor	
5	The nominated RTA environmental officer and the HRS works supervisor will walk through to confirm clearing limits are marked and fenced appropriately prior to clearing activities occurring. The project ecologist and soil conservationist will also review clearing limits adjacent to environmentally sensitive areas prior to clearing activities and erect signage (nominally visible from distances of about 20m) that states "Environmental Protection Zone – No Entry Without Authorisation".	HRS supervisor RTA environmental officer Project ecologist Project soil conservationist	

Process 3: Identification of Habitat trees			
Steps	Activity	Responsibility [#]	Sign-off when complete
1	Workers inducted into requirements of CMS. Requirements reinforced during daily toolbox.	HRS supervisor	
2	Access to the work site is to be on existing tracks and local roads. There is to be no access from other locations.	Project ecologist	
3	Undertake a pre-clearing inspection to mark habitat trees and identify any fauna of concern. Habitat trees will be identified with fluorescent pink survey tape and will be numbered and	Project ecologist	

	recorded via GPS.		
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Process 4: Installation of erosion and sediment controls			
Steps	Activity	Responsibility [#]	Sign-off when complete
1	Workers inducted into requirements of CMS. Requirements reinforced during daily toolbox	HRS supervisor	
2	Access to be restricted to existing access tracks and local road. There is to be no access from other locations.	HRS supervisor	
3	Install erosion and sediment controls appropriate to the work in accordance with Progressive Erosion and Sediment Control Plan (attachment 2).	HRS supervisor	
4	The nominated RTA environmental officer and the HRS works supervisor will walk through to confirm erosion and sediment controls are appropriately installed prior to works commencing in that area.	HRS supervisor RTA environmental officer	
5	Erosion and sediment controls are to be inspected weekly and after 10mm of rainfall by a suitably qualified soil conservationist.	Soil conservationist	

Process 5: Clearing and installation of GNSS			
Steps	Activity	Responsibility [#]	Sign-off when complete
1	Workers inducted into requirements of CMS. Requirements reinforced during daily toolbox	HRS supervisor	
2	All vehicles/plant associated with clearing or earthwork are to be inspected to ensure weed free or free of soils which may contain weed propagules.	HRS supervisor	
3	Clearing must be undertaken using a two stage process as outlined in the CEMP where habitat trees will be removed. Timber-felling is to be undertaken using direction felling into the cleared	HRS supervisor	

	area only within sensitive areas such as EEC's.		
4	All non habitat trees are to be felled in the presence of fauna rescue personnel. Any rescued fauna will be relocated to suitable habitat in surrounding area.	HRS supervisor Project ecologist	
5	Habitat trees are to be retained for at least 48 hours to allow remaining fauna to relocate beyond clearing limits. Following this period, the project ecologist and fauna rescue personnel will be present to work with tree clearing personnel to identify any trees of concern and inspect habitat trees following felling.	HRS supervisor Project ecologist	
6	Habitat trees are to be lowered to the ground as slowly as possible to minimise the impact on potential fauna in hollows. Felled trees are to be left for a short period of time to allow fauna to escape. Following this, the project ecologist and fauna rescue personnel will inspect the hollow for any remaining wildlife and cut out hollows as required. Any rescued fauna will be relocated to previously installed nest-boxes or suitable habitat in surrounding habitat. The project ecologist will maintain records of trees with hollows that are felled (including hollows and species dimensions) and records of all animals that occupy hollows are that are relocated. Once habitat trees have been felled, any hollows will be removed and relocated to adjacent land.	HRS supervisor Project ecologist	
7	All non-harvestable timber, or timber not otherwise used in habitat replacement, is to be mulched and spread thinly within the site, or windrows along the contour within the site to minimise disturbance of topsoil and reduce erosion and sedimentation.	HRS supervisor	
8	Minimise removal of groundcover/grasses and topsoil in order to retain the run-off infiltration capacity of the groundcover and to minimise topsoil run-off.	HRS supervisor	
9	Use only clean gravel, or material containing minimal fines, for any hardstand at the site.	HRS supervisor	
10	Where perimeter fencing is to be installed, locate within approved cleared area.	HRS supervisor	
11	Seed disturbed areas, as required, with a suitable cover crop within 14 days of clearing.	HRS supervisor	
12	Survey and record area of native vegetation clearing.	HRS supervisor Surveyor	

		Project ecologist	
13	Maintain roads, disturbed areas, stockpiles and handling areas in a condition that minimises windblown, traffic generated or equipment generated dust. This could be done by activities such as: <ul style="list-style-type: none"> • Watering. • Road sweeping. • Removal of accumulated materials from environmental controls. 	HRS supervisor	

Broader roles and responsibilities of the RTA, Hunter Road Services and any subcontractors are outlined in further detail in Section 5 of the RTA's stage 1 early works CEMP.

Approvals

Approval Authority	Signature	Date
RTA senior environmental officer		
HRS supervisor		
RTA project manager		

Environmental management representative	
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Revision Schedule

Revision Number	Changes	Authorised by / Date

Signoff

By signing this document you confirm that the CMS has been fully explained and that you have clearly understood and accept your required responsibilities and actions. You also confirm that you understand that the controls specified in the CMS must be applied as documented or an alternative CMS is to prepared and approved.

Name	Position	Employer	Signature	Date

Attachments

Attachment 1 - sensitive area map 5 and map 9, – chainage 7,700 and 15,100, respectively.
Attachment 2 - progressive erosion and sediment control plan.

Sensitive areas maps have been removed because they show confidential information about the location of Aboriginal heritage sites.

GNSS Site No. 2- Hunter Expressway
within Daracon Group Quarry
Progressive Erosion and Sediment Control Plan
12/08/10



Figure 1 - Aerial shot of the GNSS site 2 located within the Daracon Group quarry.

Erosion and Sediment Controls

It is anticipated that earthworks will be required to level the site and create a 9.0m x 12.0m pad for the GNSS storage container and for installation of security fence.

The site is on a natural ridge and it is not anticipated that there will be any 'run on' surface water to manage. Controls will be installed to manage sediment and construction runoff.

Access will be via existing access road and tracks within Daracon Group quarries. However, some improvements to a 50 metre to 70 metre section of the track adjacent to the work area will be required to allow safe delivery of the container.

The Pad area

1. The principle of **Minimal Disturbance** will be employed at all times by:
 - Staying on existing access tracks both sealed and unsealed.
 - Pegging out the actual location of the pad area (9 x 12m) before clearing.
 - Avoiding the use of heavy machinery for trimming and employing a qualified arborist to scale the trees.
2. **Install sediment fences** in a series of arcs down stream of the pad before starting earthworks.
3. **Cover all disturbed areas** with mulch generated from the clearing/trimming process.

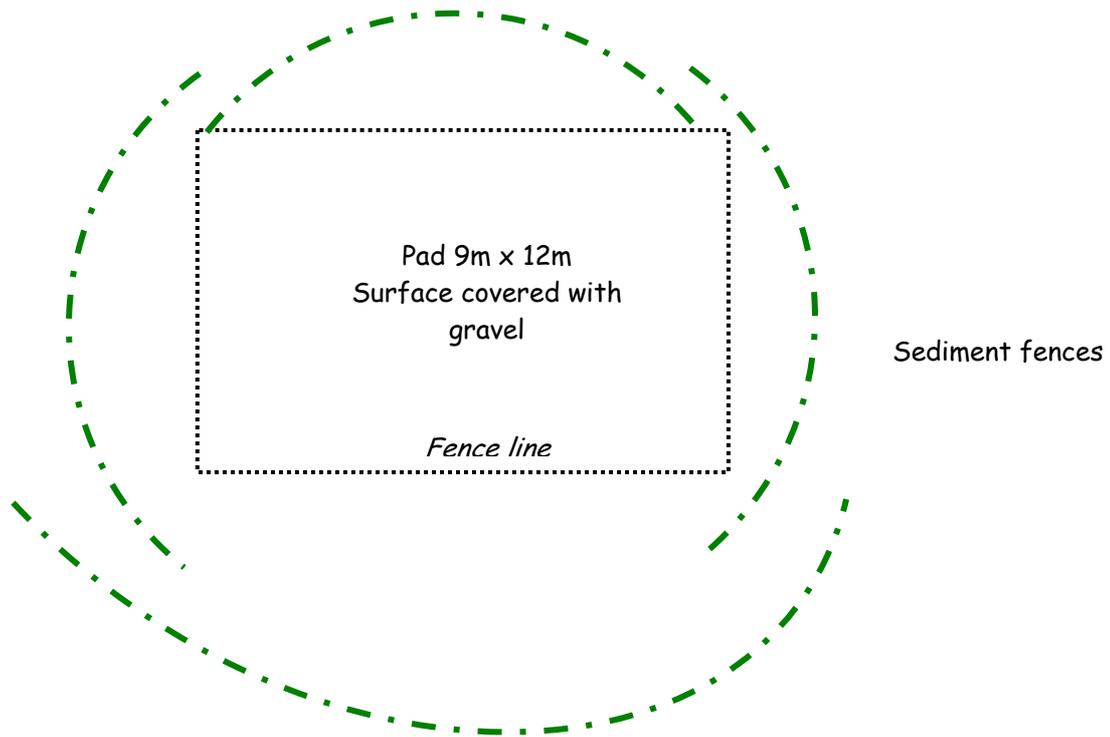


Figure 2 - Erosion and sediment controls

Access track improvement

1. Use clean gravel fill to topdress the road creating a "crown" surface.
2. Remove all windrows of gravel from the edge of the access track to allow water to sheet off the access track.
3. Install cross-banks at 30 metre intervals along the access track.

Clearing/Trimming Procedure

In accordance with the GNSS - Consistency review April 2010, only trees and/or vegetation within 10⁰ of the line of site of the aerial will be removed. This will require the removal and/or trimming of up to 100 trees.

The following controls will be implemented:

1. The project ecologist shall be present at all times and will be responsible for any fauna rescue.
2. The project ecologist will tag and mark vegetation to be trimmed/removed in consultation with the Senior Surveyor (**NOTE: already completed**).



Figure 3 - trees marked by ecologist for clearing and/or trimming with set heights of cutting.



Figure 4 - example of taping indicating amount of trimming required set by the ecologist

3. The arborist will chip/mulch vegetation on site and place over the site to provide thin layer of ground cover.

ESC plan reviewed by ...Andrew Grainger..... Environmental Officer 19/08/2010

Incorporated into the daily Toolbox and copy maintained on site

..... Site Manager//....//....

GNSS Site No. 3 - Hunter Expressway
within Kurri Kurri TAFE
Progressive Erosion and Sediment Control Plan
12/08/10



Figure 1 - Aerial shot of the GNSS site 3 located on the old water tower within the Kurri TAFE.

Erosion and Sediment Controls

There earthworks anticipated at this site as the GNSS aerial will be attached directly to the water tower and all equipment will be locked within the tower.

Access to the site will be via existing TAFE access roads.

The Site

1. The principle of **Minimal Disturbance** will be employed at all times by:
 - Staying on existing access tracks both sealed and unsealed.
 - Avoiding the use heavy machinery when clearing/trimming vegetation by using qualified arborist to scale the trees.

Clearing/trimming procedure

In accordance with the GNSS - Consistency review April 2010, only trees and/or vegetation within 10⁰ of the line of site of the aerial will need to be removed/trimmed. The following controls will be implemented:

1. The project ecologist will be present at all times and will be responsible for any fauna rescue.
2. The project ecologist will tag and mark the section of vegetation to be trimmed/removed in consultation with the Senior Surveyor.
3. The arborist will chip/mulch vegetation on site and place over the site to provide thin layer of ground cover.



Figure 2 - example of taping indicating amount of trimming required set by the ecologist.

ESC plan reviewed by ...Andrew Grainger..... Environmental Officer 19/08/2010

Incorporated into the daily Toolbox and copy maintained on site

..... Site Manager / /